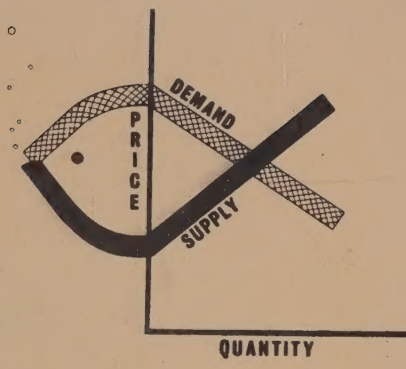

ECONOMIC FEASIBILITY OF A SEAFOOD PROCESSING OPERATION IN THE INNER CITY OF MILWAUKEE

by

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ECONOMIC FEASIBILITY OF A SEAFOOD PROCESSING OPERATION IN THE INNER CITY OF MILWAUKEE

INTRODUCTION

This report deals with the economic feasibility of processing fish and shellfish harvested in the coastal areas of the United States within the inner city of Milwaukee. The report is specifically concerned with whether employment can be created within that city by generating locally a greater percentage of total value added to seafoods. Because there are so many variables and unknown factors, this report does not attempt to describe an optimal seafood processing operation in the inner city of Milwaukee. Rather, it discusses some of the most likely sources of supply, transportation and quality problems, plant equipment and labor considerations and possible marketing difficulties.

CONCLUSIONS

Given certain prerequisites, a seafood processing operation in Milwaukee could prove feasible. It is estimated that as many as 20 full-time jobs could be created in processing and handling seafoods.

Industry and Bureau of Commercial Fisheries marketing efforts have demonstrated that the demand for quality seafoods in the Midwest

reacts encouragingly to aggressive promotion. Reliable sources of supply have usually proven to be the major factor in developing successful Midwestern markets. Several sources of unprocessed seafood from Alaska, the Gulf of Mexico, and New England hold some promise but the reliability of these sources needs further development.

Although transportation will be an important element in total cost it should not be prohibitively high for most seafood items as long as there is not direct competition with the same item processed near the point of landing. Unless the seafood moves in bulk by truck, transportation costs will necessitate concentration on high quality, high priced items.

Because of the sensitivity of the success of a processing operation to price margins it is necessary to develop and preserve a reputation for dependable volume and quality. This will take not only aggressive marketing but also capable management on the production side. Efficiency and quality are two objectives which must be built into any project design.

SUPPLY

Potential sources of fish and shellfish which would lend themselves to some degree of processing in Milwaukee were explored on a region by region basis. Although all fishing regions of the United States have species which might be processed and marketed in Milwaukee and

the Midwest area, the Gulf States, and Alaska offer the most likely opportunities for supplying seafoods which can be further processed in Milwaukee.

In general, processing near the landing site provides significant economies. The concentration of raw product allows economies of size in processing larger volumes, in addition, transportation expenditures for unused portions of fish or shellfish are eliminated. Much of the feasibility of processing in Milwaukee will depend upon offsetting these advantages by expanding local markets particularly institutional and fish counter markets. It would be difficult to process locally and attempt to compete with the same product processed near the site of landing.

Basic Considerations

Volume

The optimal volume per period of time will depend on markets, labor availability, quality preservation, economies of large volume shipments, and sources of supply. Transportation cost is highly dependent on the volume of the shipment and, in some instances, the regularity of shipments. Semitrailer loads of fish from one point of origin offer considerable reductions in transportation costs per pound over small shipments. High volumes, however, may conflict with the size of operation desirable considering markets and labor force.

Consistancy

It is desirable, and to some extent necessary, to operate under conditions of fairly regular supply. It is not necessarily true that the feasibility of a processing operation depends upon complete consistency of supply. At a minimum, however, future supply conditions must be fairly accurately known. Some flexibility may be gained by establishing more than one source.

Two dynamic aspects of supply problems must be integrated into planning. One is seasonality of supply and the other is year-to-year variability of supply. It is possible to process several species or draw supplies from more than one area to counteract seasonality of any one source. Sources or species which have extreme year-to-year variability or which may decline in the future should be avoided.

The safest way of assuring a constant or properly anticipated supply is by establishing agreements directly with individual fishermen and packing houses. In this manner not only can consistency be predetermined but also uncertainity in procurement costs and quality is reduced.

Quality

Whatever the arrangements for transporting, processing and marketing fish are, maintenance of an acceptable quality level

is absolutely necessary. Kept properly iced, most seafoods will maintain adequate quality for 7 to 10 days after being removed from the water. Fatty fish tend to turn rancid, developing undesirable odor and taste, quicker than lean fish. By purchasing seafoods in quality condition at the point of landing, and packing properly for transporting, then transporting under proper conditions, it can be assured that the seafood will arrive in Milwaukee in good condition.

To preserve quality the seafood must be processed quickly in a chilled environment and then either marketed immediately or frozen. There should be less of a quality problem if seafood is purchased and processed in a frozen form - or thawed, processed, and sold immediately. Numerous species of finfish, shrimp and crab could be handled in this manner.

Transportation

Milwaukee is centrally located with regard to air and land transportation. It can be reached within a 24 hour period by air from numerous ports in Alaska and the lower 48 States. By direct trailer-truck, it can be reached from the East and Gulf Coasts within 24 to 48 hours, and from the West Coast within 72 hours. Shipment of fresh fish overland from Alaska would run into a problem

of quality, and preservation, though the possibility of moving fresh salmon by truck from Southeast Alaska to Chicago has been considered. In general, if seafoods are landed in a quality condition and packed properly, transportation need not present a significant quality problem.

Adequate service at reasonable cost especially for fresh seafoods can, however, be a problem. Table 1 shows existing air freight rates from selected locations in Alaska and the lower 48 States. A minimum of two cents per pound should be added to the basic transportation charge for transportation between landing site and airport and between airport and processing plant. In addition, the cost of containerization (the container, materials, and labor), is estimated to be about two cents per pound. Air transportation would then cost at least four cents per pound more than any rate shown in table 1. Most truckers would insist on adequately containerized iced fish. If sufficient volume could be carried on a regular basis, it would probably be possible to contract a truck to carry fish loose and iced. Under this arrangement, transportation plus handling costs from, say Florida, could be as low as 3.5 to 4 cents per pound.

Table 1 .--Air freight rates for fishery products in force March 1968, select locations to Milwaukee. 1/

	100 and Under	101 to 1000	1001 to 2000	2001 to 3000	3001 to 5000	5001 to 10000	10001 and Over
Ketchikan							
fish	.1460	.1250	.1150	.1150	.1150	.1150	.1150
shellfish	.1630	.1530	.1305	.1305	.1305	.1305	.1305
Juneau							
fish	.1660	.1390	.1250	.1250	.1250	.1250	.1250
shellfish	.1830	.1630	.1405	.1405	.1405	.1405	.1405
Yakutat							
fish	.1760	.1615	.1475	.1475	.1475	.1475	.1475
shellfish	.1930	.1835	.1630	.1630	.1630	.1630	.1630
Cordova							
fish	.1760	.1690	.1550	.1550	.1550	.1550	.1550
shellfish	.1930	.1930	.1705	.1705	.1705	.1705	.1705
Homer							
fish	.2090	.1790	.1650	.1650	.1650	.1650	.1650
shellfish	.2230	.2030	.1805	.1805	.1805	.1805	.1805
Kodiak							
fish	.2060	.1990	.1550	.1550	.1550	.1550	.1550
shellfish	.2230	.1930	.1705	.1705	.1705	.1705	.1705
Unalakleet and Kotzebue 2/	.1300	.1300	.1300	.1300	.1300	.1300	.1300
	To Seattle - - .0500 per pound to Anchorage, minimum shipment of 2000 pounds						
Seattle and Portland							
fish	.1010	.0940	.0790	.0790	.0790	.0790	.0790
shellfish	.1180	.1180	.0945	.0945	.0945	.0945	.0945
Los Angeles 2/	.1445	.1345	.1280	.1205	.1155	.1130	.1130
San Francisco 2/	.1570	.1420	.1320	.1245	.1195	.1170	.1170
New Orleans	(To Chicago - - Chicago to Milwaukee .0130)						
	.0860	.0790	.0720	.0610	.0610	.0610	.0610
Tampa	(To Chicago - - Chicago to Milwaukee .0130)						
	.0850	.0850	.0850	.0850	.0850	.0850	.0850
Miami 2/	.1080	.1080	.1080	.1080	.1080	.1080	.1080
Charleston 2/	.1080	.1080	.1080	.1080	.1080	.1080	.1080
Norfolk 2/	.1335	.1195	.0925	.0875	.0840	.0815	.0805
Baltimore 2/	.0915	.0740	.0690	.0655	.0630	.0620	.0620
Boston 2/	.1125	.1050	.1000	.0965	.0940	.0930	.0930

1/ Lowest published rates available from local.

2/ No commodity rates from these locations.

Source: Airline Tariff Publishers Agent - - Specific Commodity Tariff 5-B CAB No. 1 Agent J. Aniello Series March 1969 (New York).

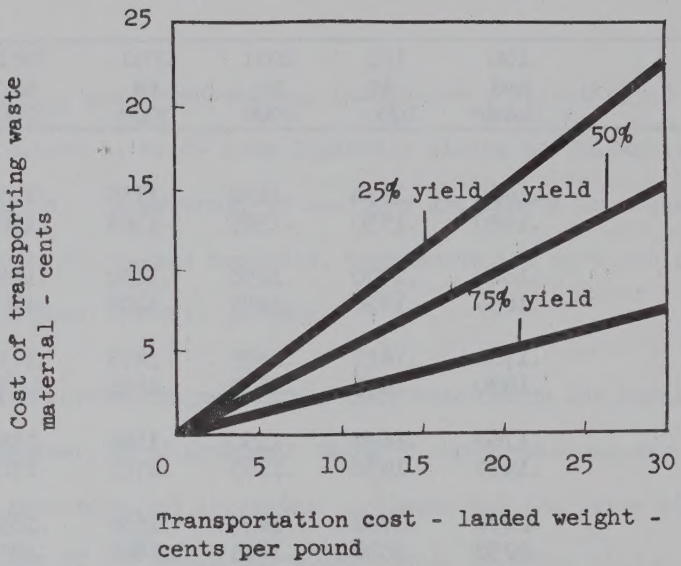

Figure 1 . -- Cost of Transporting Wasted Material

The importance of maintaining low transportation rates is illustrated in figure 1. A fillet yield runs from 25 percent to over 50 percent depending on the specie. If the yield is 50 percent and total transportation cost is 10 cents per pound, the cost of bringing the fish to market will be twice as high as need be. The retail price will have to reflect this higher cost and unless the product can be differentiated as higher quality as compared to other seafoods it might compete with, there will be consumer resistance to absorbing the transportation costs.

Potential Sources of Raw Material

It was determined that currently underexploited seafoods offer the best long run opportunity for supplying a processing operation in the Midwest. Overriding economies of processing near the coast preclude the possibility of transferring coastal processing to the Midwest for existing volumes flowing to Midwestern markets. Chance of success would be increased if the quality fresh fish market could be expanded within the Milwaukee marketing area. This becomes more than a problem of processing. Market potential and market development are critical considerations. Because of the increased probability of long run success from emphasizing underutilized species in expanding Midwest markets there is a concentration on certain Gulf of Mexico and Alaska species in the following discussion.

New England and North Atlantic

Of the North Atlantic fisheries those in New England offer the most as a source of unprocessed or partially processed seafoods. The haddock resource, long the mainstay of the Boston and other New England fishing fleets, is resulting in substitution of other, previously underutilized species such as dogfish, white hake, pollock, butterfish, Boston mackerel and ocean quahogs. It will

take a marketing program and time to build a market for increased landings of the above species. Milwaukee markets then would not face any great competition from other markets for those species. This fact should be expected to result in favorable prices during the period of developing markets.

Maine shrimp offers another possible seafood that could be partially processed in Milwaukee. This fishery is seasonal from December to April as the shrimp move into shore. Because of the eggs adhering to the shells of the shrimp it is most desirable to market the shrimp shell-off. Quality considerations necessitate that the shrimp be either cooked or frozen shortly after landings. It would be impossible to ship fresh Maine shrimp to Milwaukee without loss of quality. Shrimp could be frozen at the site of landing to be later cooked and distributed in the Milwaukee area.

The question of whether economies of processing shrimp in Maine outweigh any advantages of processing locally in Milwaukee remains unanswered. A more detailed production cost analysis is needed. In the case of finfish landed in Massachusetts where there is a problem of wage competition between hand filleting and mechanized operations a Milwaukee hand filleting operation may not experience the strong competitive pressures it otherwise would.

South Atlantic

Main food species landed in the South Atlantic are blue crabs, shrimp, oysters, croaker, flounder, king mackerel, king whiting, black mullet, scup, sea bass, sea catfish, sea trout, shad, spanish mackerel, and spot. Individual states and the Coastal Plains Regional Commission are working to increase employment and value added from the South Atlantic fisheries. It should be expected that the expansion of any fishery will be accompanied by expanded processing capacity within the coastal area. 1/

Gulf

Several species of finfish from the Gulf of Mexico offer a feasible source of raw material for a Midwest processing operation: king mackerel, mullet, Spanish mackerel, snapper, spotted sea trout, grouper, king whiting, black drum and red drum. These species are landed in large volume, notably in Florida, and have potential for further exploitation if new markets are developed. Figure 2 shows landings volume and relative State shares for each species in 1967. Figures 3 through 11 show the monthly volume of landings

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1/ Examples of studies reflecting the interest in expanding this region's seafood processing industry are found in: J. C Hite and J. M. Stepp, Economic Analysis of the Development Potential of the Commercial Fisheries of the Coastal Plains Region, Economics of Marine Resources, No. 1, Clemson University, January 1969; and Economic Development Administration, Carteret County Seafood Processing Project - Part 1, Marine Chemurgics, Inc. (Contractor) Morehead City, North Carolina March 14, 1966.

and the average price per pound. Table 2 shows the monthly wholesale price range of those species reported for the French market in New Orleans.

The seasonal pattern of landings for these selected species is diverse enough to assure an adequate year-round supply emphasizing species according to their abundance. Transportation costs could be greatly lowered by moving truck loads, 30,000 pounds, from dockside to the processing plant in Milwaukee. The fish could be packed in large open boxes or even placed directly into the trailer with ice. This would minimize handling and container costs without significantly sacrificing quality. Transportation costs would then run only three to four cents per pound and handling cost should be under two cents per pound.

Certain economies can also be achieved with truck transportation over air transportation by eliminating pickup and delivery costs. Also, a truck load can be formed from several ports, for example from the Florida West Coast, in a matter of only part of a day. Lapse time in moving fish from dockside to plant will be, at the most, only a fraction of a day longer by truck than by air.

Most local processing plants in the Gulf are geared to high volume (seasonal) production. The feasibility of processing in Milwaukee

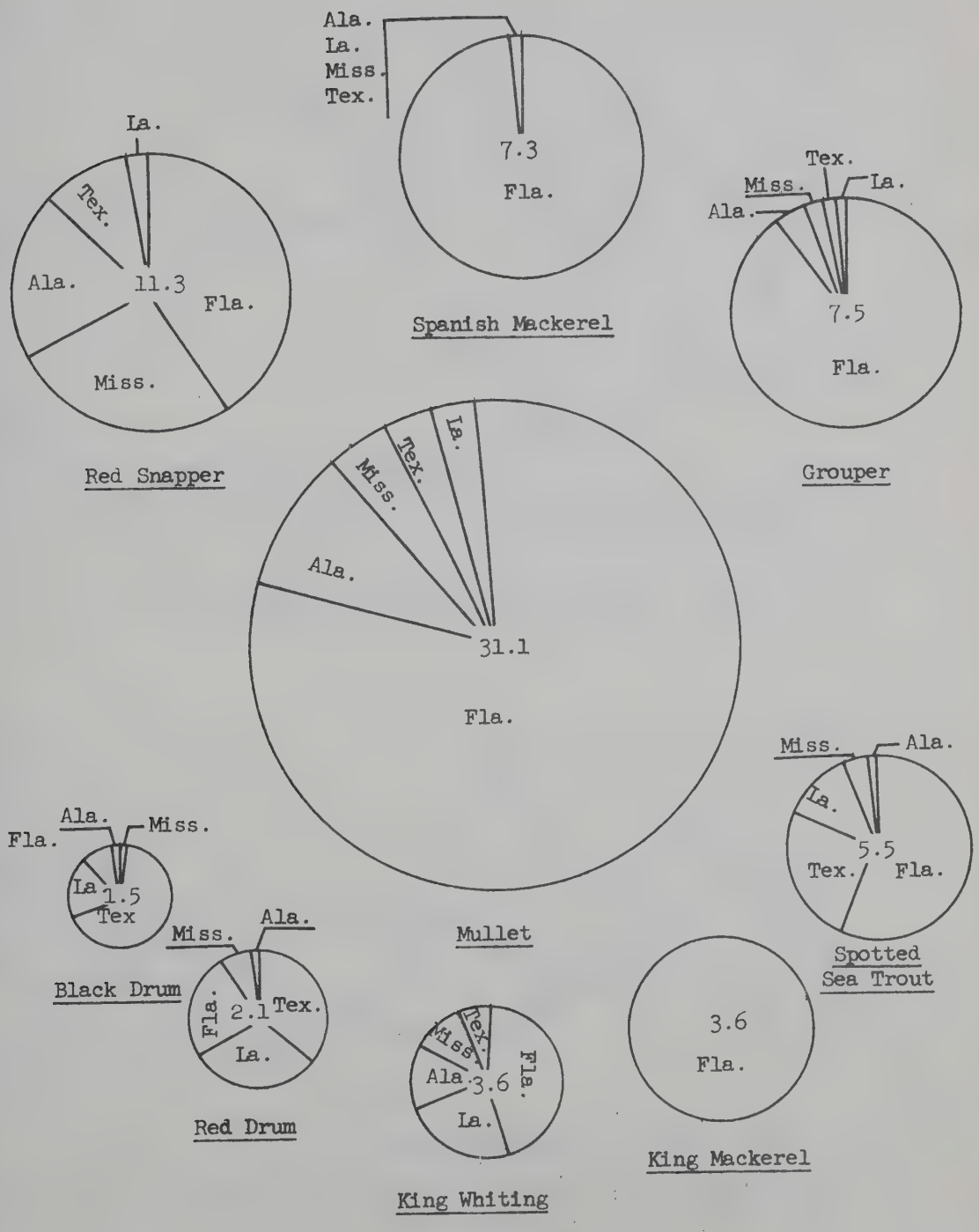

Figure 2.--Landings of selected fin fish by state shares, Gulf of Mexico, 1967 (in millions of pounds)

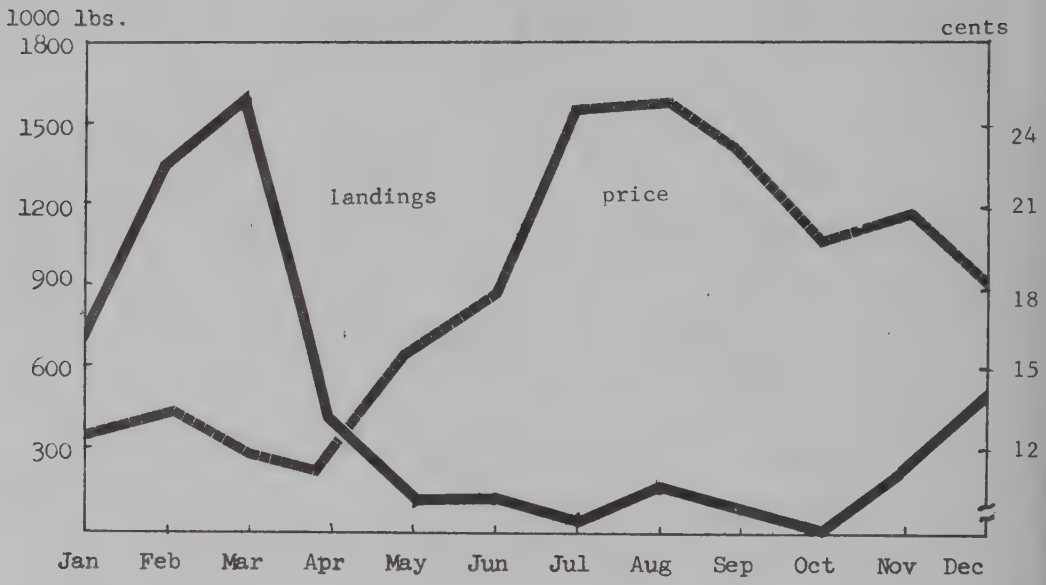

Figure 3 .--Monthly landings and Average monthly price per lb., king mackerel, Gulf States, 1967

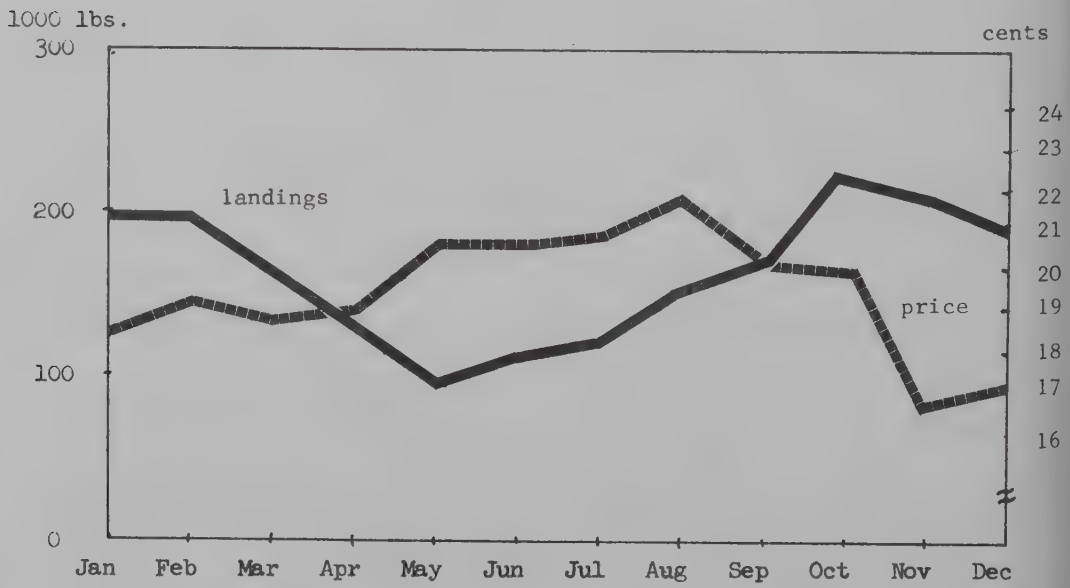

Figure 4 .-- Monthly landings and Average monthly price per lb., red drum, Gulf States, 1967

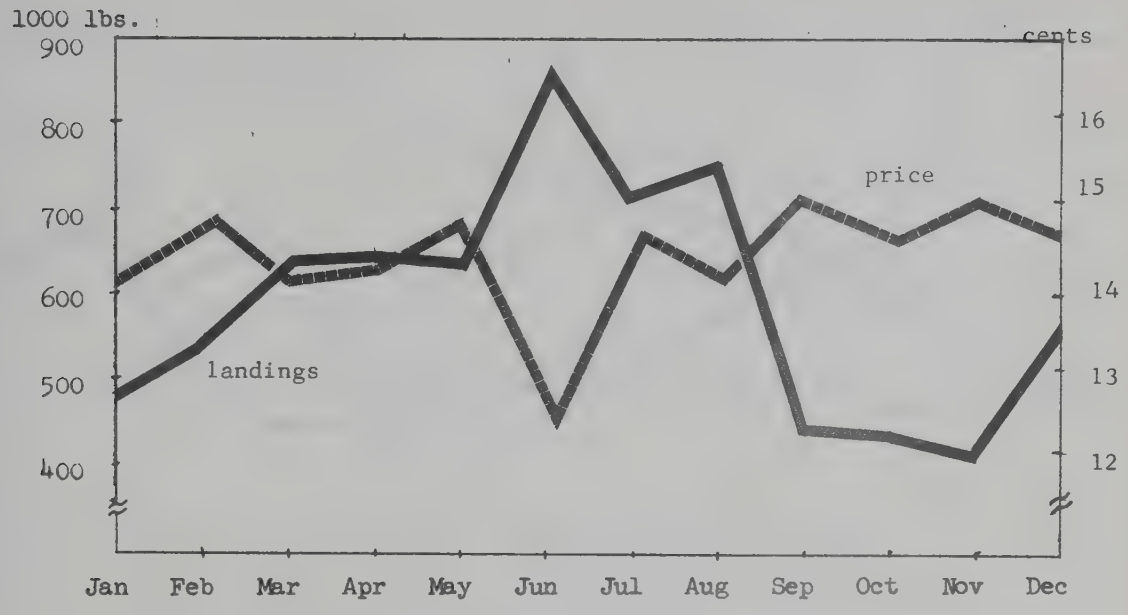

Figure 5 .--Monthly landings and Average monthly price per lb., grouper, Gulf States, 1967

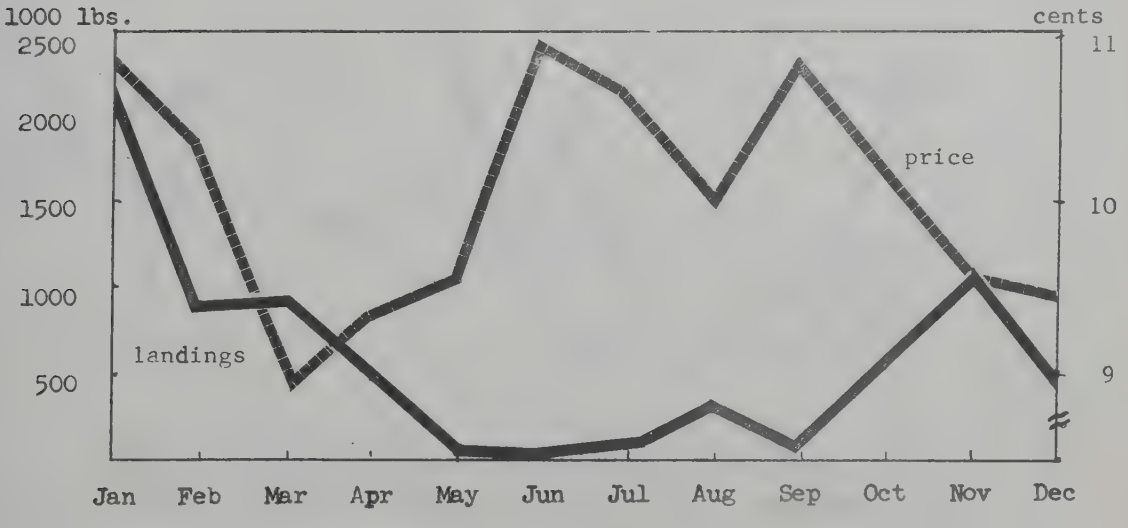

Figure 6 .--Monthly landings and Average monthly price per lb., Spanish mackerel, Gulf States, 1967

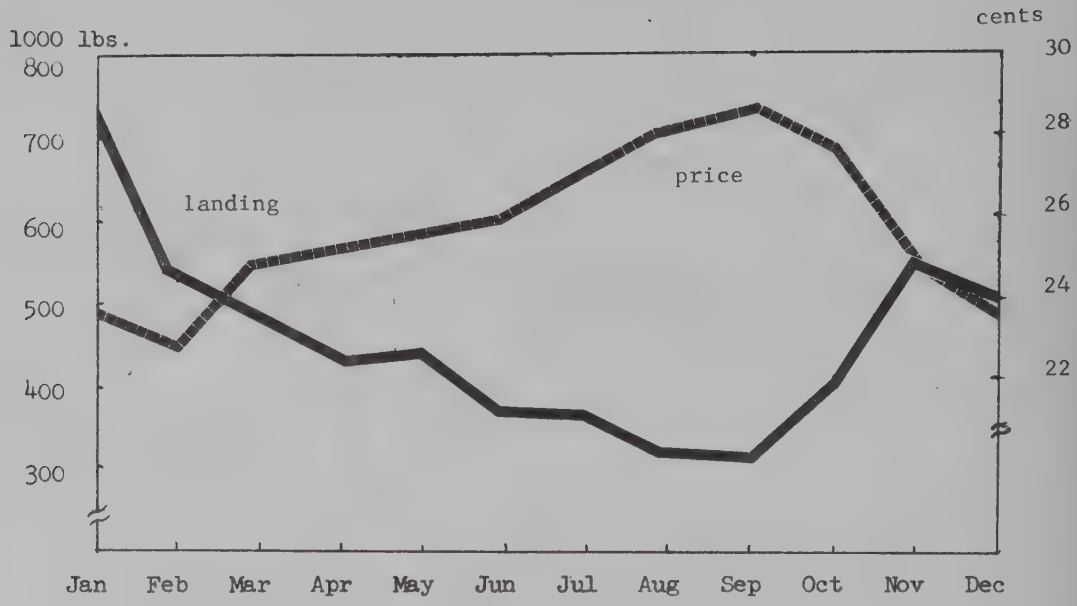

Figure 7 .--Monthly landings and Average monthly price per lb., spotted sea trout, Gulf States, 1967

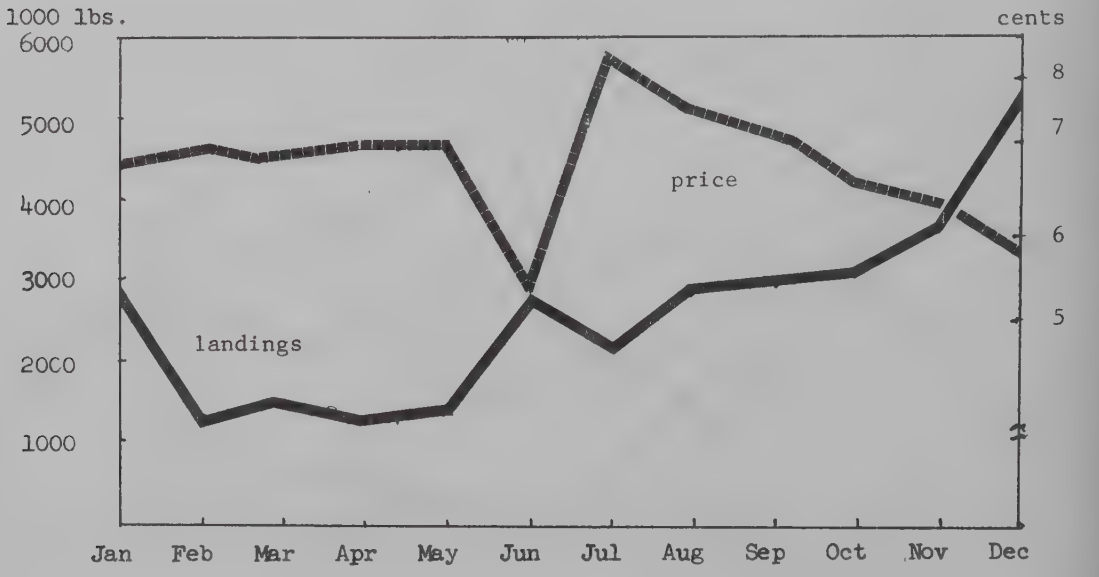

Figure 8 .--Monthly landings and Average monthly price per lb., mullet, Gulf States, 1967

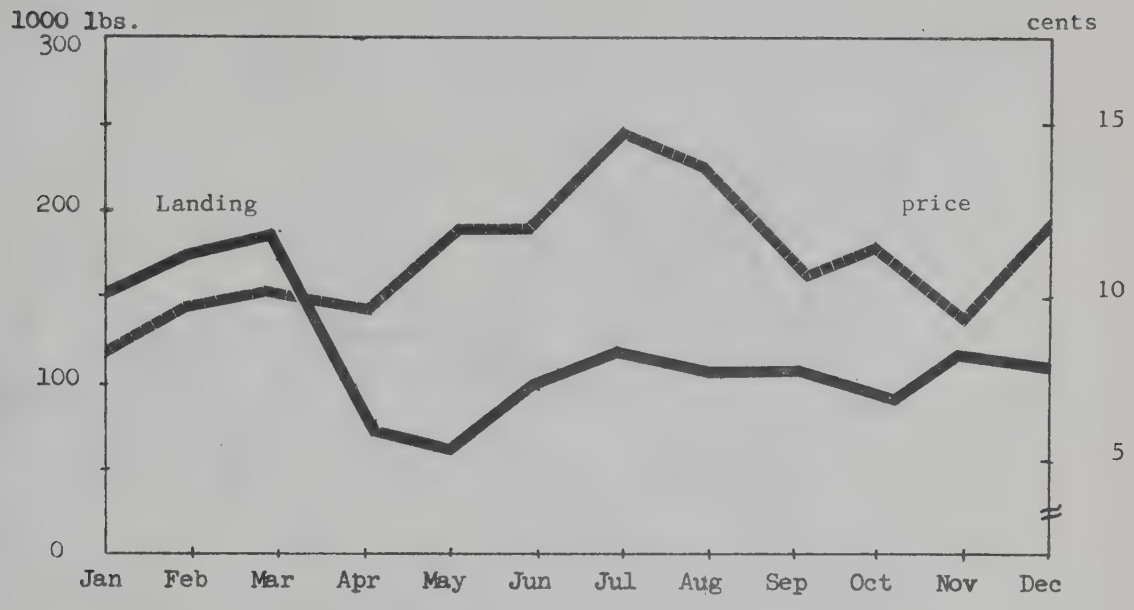

Figure 9 . Monthly landings and Average monthly price per lb., black drum, Gulf States, 1967

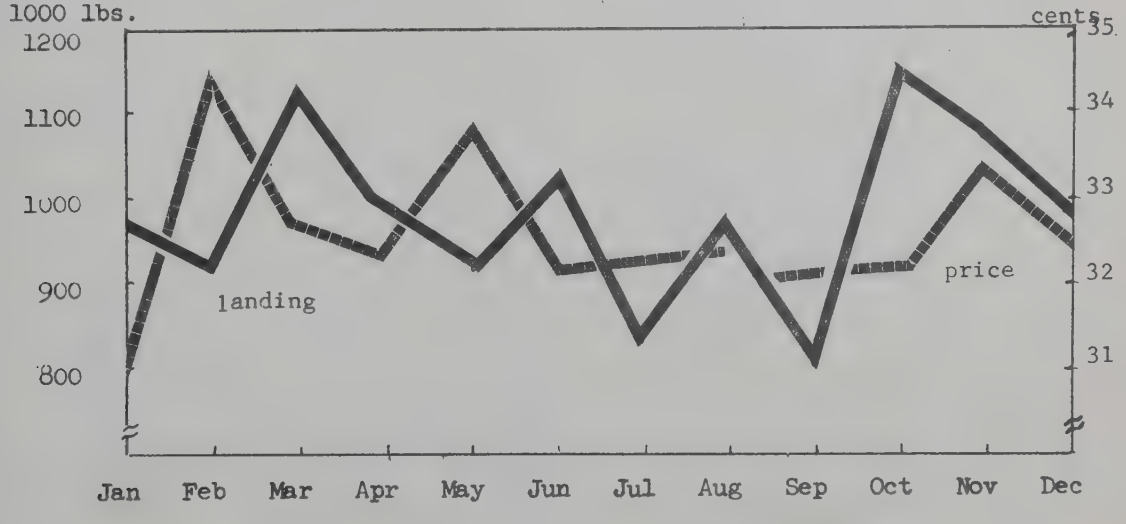

Figure 10.--Monthly landings and Average monthly price per lb., snapper, Gulf States, 1967

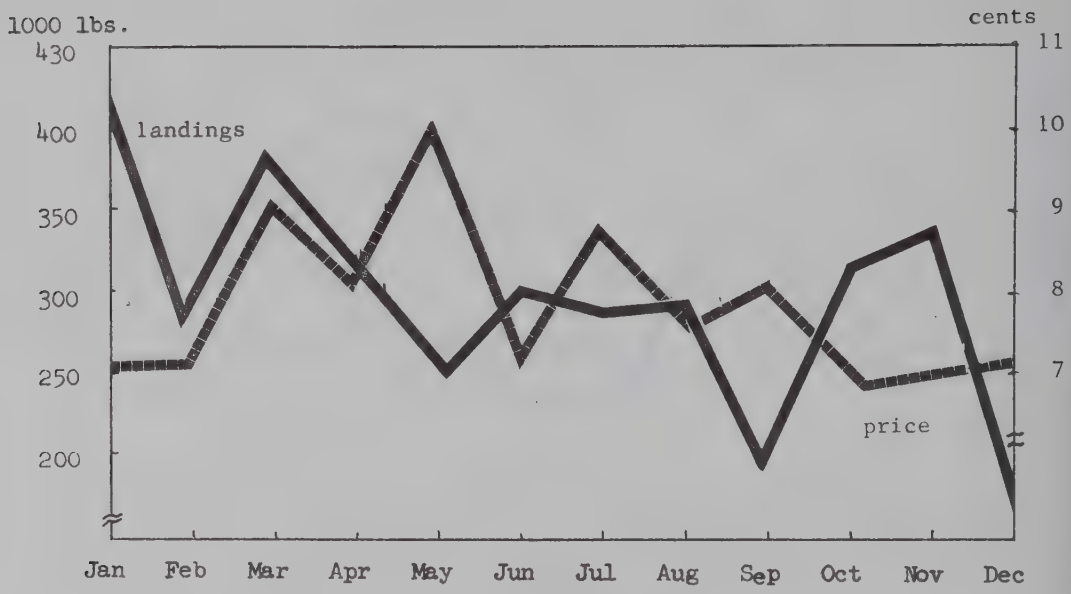

Figure 11.--Monthly landings and Average monthly price per lb., king whiting, Gulf States, 1967

Table 2 - Monthly wholesale price ranges of selected species - New Orleans French Market - 1967
(Cents per pound)

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Black Drum	Bull	2.7-3.7	2.4-3.4	2.7-3.7	2.7	2.7-3.7	---	1.9-2.7	2.7-3.7	2.7-3.7	2.7-3.7	1.9	1.9
	Md Sm	5-10	5-12.5	5-12.5	5-15	6-12.5	5-12.5	5-12.5	6-12.5	5-12.5	5-15	4-12	5-15
Red Drum	Bull	150	150	150-200	200	200-250	250	250	175-250	200-250	175-250	100-150	125-150
	Md	10-20	10-20	15-20	15-22.5	20-30	20-30	25-30	20-30	25-30	10-30	10-20	8-15
	Sm	10-15	10-17.5	14-20	10-20	16-25	25-30	25-30	20-30	25-30	13-30	10-15	8-15
Grouper		---	10	10	---	---	---	---	---	---	---	---	---
King Whiting	Lg	8-15	10-15	10-15	8-15	10-15	10-15	11-15	10-15	10-15	8-15	8-15	10-15
	Sm	5	5-7	5-7	5-8	3-8	4-8	4-7	5-8	5-8	3-8	3-7	3-6
Spotted Sea Trout	Lg	20-30	20-40	30-40	25-40	30-40	35-40	35-45	35-45	45	30-45	25-40	25-35
	Md	15-25	15-20	20-35	20-30	20-30	20-30	25-35	28-35	35	25-40	20-3	15-25
	Sm	10-15	10-20	15-20	15-25	15-25	15-20	20-25	20-25	25-30	15-35	13-20	10-20
Spanish Mackerel		---	---	10-12	10	10	---	---	10	---	10-15	8-10	8
Red Snapper	Lg	30	30	30-35	30-35	35	35	---	---	30-40	35	---	35-40
	Md	30	30-40	25-35	10-12	35	32-37	30-35	30-35	30-40	35-40	40	35
	Sm	10-12	10-12	10-15	10-12	12.5	12.5	12.5	10-15	10-12	10-15	10-12	10

Source: Gulf Fisheries - 1967 - Market News Service

will depend upon expanding landings in the Gulf and upon development of firm markets in the Milwaukee area.

Pacific Coast

Except for a few species which have technical problems covering consumer acceptability, Pacific Coast species tend to be fully exploited. Local processing capacity is sufficient to handle all that is landed and local markets absorb large amounts of fresh fish. Salmon, halibut, oysters and crab currently move fresh from Seattle east by air. Milwaukee has one of the highest receipts of fresh seafoods shipped from Seattle. However, no significant processing is needed on these seafoods to prepare them for the retail makret. In addition, the salmon and halibut season are very short and would probably be less than ideal even if some processing could be done.

Alaska

Alaska is an important potential source of seafoods which might be further processed in the Midwest. It must be recognized, however, that in spite of a history of optimism on the part of many knowledgeable persons in industry and Government the Alaska fishery resource continues to be underutilized. The importance of developing

reliable sources of supply in Alaska cannot be overemphasized There exists a number of critical technological and economic factors holding back the fulfillment of Alaska's resource potential.

Landings in 1967 represented only fifteen percent of the estimated maximum sustainable yield from Alaska's fish resource.

Currently utilized and potential species include halibut, salmon, king crab, dungeness crab, tanner crab, shrimp, scallops, clams, sablefish, Pacific ocean perch, yellowfin, rock sole, turbot, flathead sole, cod and pollock. Most of these species lend themselves to being flown fresh to the lower 48 States. Whether or not they are suitable for processing outside of Alaska is another question. During the past decade there has been a tremendous increase in processing and freezing facilities in Alaska.

Quality considerations necessitate a certain amount of processing that can be accomplished away from the place of landings. Scallops, which may prove to be an extensive resource, deteriorate rapidly if not shucked and eviscerated. Tanner and dungeness crab could possibly support a picking operation supplying local markets. Certain problems of stabilizing flavor and color in Alaska shrimp necessitate cooking of the shrimp soon after harvesting. A hand peeling operation is not economically feasible unless markets can be developed to

support a high price. At present there is an effort in Kodiak to hand peel and freeze sidestripe shrimp for the gourmet market. The possibility of processing Alaska shrimp in the Gulf States to take advantage of existing capacity and knowledge has been considered; shrimp would be transported frozen. It would be worthwhile to further consider the possibility of developing local markets for locally processed shrimp -- assuming that it would be saleable as a quality item.

The potential for increasing the salmon catch is considered excellent. Salmon, however,is seasonal. At best the season runs only several weeks each for kings, cohos, sockeye and chums during the summer months. In addition to supplying a fresh seasonal market in the Midwest, it might be worthwhile to further investigate the possibility of steaking frozen salmon for local markets. Using frozen salmon would lower transportation costs, and dampen some of the seasonality by accumulating stocks for future processing. Steaking is a simple operation and does not require expensive equipment.

The Alaska groundfish industry is quite small relative to its potential. A study done for the Area Redevelopment Administration (now The Economic Development Administration) in 1964 delineated the potentials and problems of developing an Alaskan bottomfish industry.[2/]

2/ Area Redevelopment Administration, A Market Research Study for a Proposed Alaska Bottomfish Industry, Wolf Management Services (Contractor) U. S. Government Printing Office, Washington, D. C. February 1965.

Pertinent findings were:

1. Good resource potential.
2. Extensive program needed to develop markets.
3. Risk in fresh market - should concentrate on frozen items.
4. Industry must be based on increased harvesting efficiency.

This market may be worth developing but high transportation costs for lower valued species may prohibit processing outside of Alaska.

Possibilities of Alaska freshwater fish have so far not been discussed in this study. Although there is only sketchy knowledge of the Alaska freshwater fish resource, it is believed that whitefish, lake trout and other freshwater species are abundant in Alaska's lakes and streams. These fish should find ready acceptance in the Midwest. Beginning in the early 1960's and continuing to date an effort has been made to develop a freshwater fishing industry partially dependent on the Midwest market. Apparently difficulties of securing consistent supplies has hindered full scale development of the freshwater fishery. Test shipments have been of filleted products. Because of the remoteness of most potential freshwater fisheries it would be necessary to lower transportation costs by shipping as high valued a product as possible. The Bureau of Commercial Fisheries and the State of Alaska are continuing to assist the development of a freshwater fishing industry and markets.

PROCESSING

The nature and magnitude of the processing operation will be dependent on a number of factors, including the volume and species available and the potential market for each specie-product form in the Milwaukee distribution area.

Product Forms

Individual seafood items which lend themselves to processing and distribution in the Milwaukee area will determine the type of plant, equipment, and labor skills needed. Most of the potential product forms have been discussed previously. The operation need not be restricted to fresh fish. Some specie-product forms are ideally suited for being processed in the frozen form. In general, however, a small, local processing operation may be at more of a disadvantage competing with high volume coastal producers of frozen items. An exception would be made for a large producer of sticks and portions using frozen blocks and slabs. This operation, however, necessitates a sizeable and costly plant.

Plant and Equipment

The type of plant and equipment needed will depend on the species handled, volume, and storage needs. If species that are similar with regard to size, shape and skeletal structure are the only species handled, then the operation is relatively simple. If, however, species vary

in size, shape and their final product form, the plant begins to become more complex. If both finfish and shellfish are processed in the same plant, two completely different processing lines will be required. Certain diseconomies may result because of the not too transferable different skills needed to fillet finfish as opposed to shelling and other processing operations with shellfish.

Processing an adequate quality product requires a building of adequate floor space and layout to handle the desired volume of seafood. There must be adequate cooler facilities and, if frozen, seafood is either a raw material or the finished product. If the product is to be frozen, adequate freezing facilities, such as a blast tunnel, will be required.

An approximation of some of the costs associated with a filleting operation can be taken from the experience of the Bureau of Commercial Fisheries in establishing a pilot processing plant in Hancock, Michigan.[3/] "The plant was designed to produce primarily raw, individually quick frozen, unbreaded and breaded, cisco and club fillets and headed and gutted, breaded smelt."[4/]

3/ U.S. Department of the Interior, Bureau of Commercial Fisheries (contractor) An Action Program to Demonstrate the Feasibility of Introducing New Techniques in the Lake Superior Commercial Fishery Industry, Technical Assistance Project No. 1083 U.S. Department of Commerce, Economic Development Administration, Washington, D. C., November 1968.

4/ Ibid. p 7.

Table 3 reproduces the individual items of equipment used in the plant and their value. This serves as a rough guide to the expenses involved in a diversified product form output. The blast freezing equipment had a capacity of 600 pounds per hour.

Chub and cisco present only minor problems of equipment adaptability and adjustment compared to the diverse sizes and shapes that an operation might have to handle drawing on several sources of supply. It may be found that only those species which, 1) lend themselves to automated or semi-automated processing; and 2) are handled in sufficient volume, should be considered for automatic processing. The possibility of this type of operation being dependent on skilled hand labor is high. In either case, there will still be a need to draw upon appropriate efficiences of automation. Another Economic Development Administration processing project determined the minimum equipment requirements for a small hand labor operation included, a rotating sealing and washing screen, motor driven scalers, conveyor belt and a header.5/

A plate freezer like that used in the Carteret County project is an alternative to the blast freezer. The plate freezer used was a small, self-contained cabinet capable of freezing 240 5-½" x 4" fillet

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5/ Marine Chemurgics, Inc. (Contractor) Carteret County Seafood Processing Project, Contract No. Cc6161. Project No. 777. Economic Development Administration, Morehead City, N.C. March 14, 1966, p 15.

Table 3. -- Equipment Cost Pilot Processing Plant, Hancock, Michigan (Provided by the Government to Inland Seas)

Item	Replacement value (dollars)	Estimated useful life (years)	Annual Charge or depreciation (dollars)
Air Compressors (1)	495.00	10	49.50
Breading Machine	7,970.00	10	797.00
Conveyor: Stein, Pick-Up	500.00	10	50.00
Dipping Machine	1,325.00	10	132.50
Exact Weight Scoop	69.50	10	6.95
Filleting Machine, Wallstrom	3,804.00	10	380.40
Fish Scaler	439.00	10	43.90
H'-Pressure Cleaner (1)	542.00	10	54.20
Pump (preservative dip apparatus)	214.00	10	21.40
Refrigeration System (blast freeze)	25,065.00	25	1,002.60
Scales, Exact Weight (2)	408.00	10	40.80
Sealer (carton)	1,995.00	10	199.50
Sealer (plastic pouch)	665.00	10	66.50
Smelt Dressing Machine	(Lease)	10	6,600.00
Smelt Grading Machine	1,000.00	10	100.00
Space Heaters (2)	454.00	10	45.40
Stirrer, Heavy Duty	130.00	10	13.00
Tables, Stainless Steel (6)	1,930.00	10	193.00
Tray Carts (5)	2,470.00	10	247.00
Truck, Hydraulic	400.00	10	40.00
Wood Pallets	57.60	5	11.52
TOTAL	$50,132.75		$10,095.17

Source: U.S. Department of the Interior, Bureau of Commercial Fisheries, Technical Assistance Project No. 1083, U.S. Department of Commerce, EDA, Washington, D. C., November 1968.

packages per hour. The weight of these packages was not reported but they seemed to be about a 12-ounce size, thus the hourly capacity of this freezer would be 180 pounds compared with the 500 pound blast freezer used in the Hancock project.

Experience has shown that successful seafood processing operations have several general factors in common. The following requirements in designing the Carteret County operation:

1. Prime fresh, clean seafoods are the minimum raw material requirement. This quality can be safeguarded by limiting storage after correct icing, and by avoiding contamination resulting from poor sanitation practices.
2. Comfortable, efficient and sanitary processing facilities must be provided for handling, dressing and packaging the seafoods in forms required by consumers and institutional buyers.
3. Products must be correctly frozen and accumulated in order to arrive at optimum quality and sufficient quantity for economical distribution. Within limitations imposed by shelf life, the ability to hold these products makes it possible to negotiate a better price.6/

6/ Marine Chemurgics, Inc.: Ibid. p 19.

It cannot be overemphasized that product quality and productive efficiency must constantly be considered if dependable markets and adequate prices and margins are to be maintained.

Labor

The importance of adequately trained labor in any seafood processing operation cannot be overemphasized. Both the quality of the final product and the efficiency of the overall operation is significantly dependent on the ability of labor in the plant. An efficient and sanitary plant layout must be backed up by trained workers and management to use it optimally.

During 1968 the unemployment rate in Milwaukee was lower than the national average, indicating that unemployment in Milwaukee is due more to factors associated with the unemployed than with general economic activity in the city. The Milwaukee unemployment rate was 3.1 percent of the labor force in July of 1968. Many of the unemployed fell into the category of frictional unemployment, including individuals who were moving between jobs or who had just started looking for a job. There is always a certain small percentage of the labor force in this category. Another portion of the unemployed fell into the group of hard core unemployment. Those individuals are centered in ghetto or slum areas where traditional economic stimuli and opportunities are restricted.

MARKETING

The greatest opportunity for a successful processing operation in Milwaukee lies in developing customized quality local markets. The problems associated with competition of volume produced frozen items make that type of a business too risky in light of probable small operating margins. A custom market for seafood suggests not only processing, but also the possibility of a delivery service to restaurants and fish stores using one or more small refrigerated trucks. Markets within a two or three hundred mile radius of Milwaukee could gradually be developed.

The problems associated with marketing should not be underestimated. The absorbative capacity of a region for seafoods must be increased if existing markets are not to be depressed. This requires not only promotional efforts to increase the total demand for seafoods, but more importantly it necessitates considerable time and effort in lining up steady customers for the net increase in seafood available within the Milwaukee distribution area.

(continued from inside front cover)

14. A Price Incentive Plan for Distressed Fisheries by A. A. Sokoloski and E. W. Carlson.

15. Demand and Prices for Shrimp by D. Cleary.

16. Industry Analysis of Gulf Area Frozen Processed Shrimp and an Estimation of Its Economic Adaptability to Radiation Processing by D. Nash and M. Miller.

17. An Economic Evaluation of Columbia River Anadromous Fish Programs by J. A. Richards.

18. Economic Projections of the World Demand and Supply of Tuna, 1970 - 90 by F. Bell.

19. Economic Feasibility of a Seafood Processing Operation in the Inner City of Milwaukee by D. Cleary.

20. The 1969 Fishing Fleet Improvement Act: Some Advantages of its Passage by the Division of Economic Research.

21. An Economic Analysis of Policy Alternatives for Managing the Georges Bank Haddock Fishery by L. W. Van Meir.

22. Some Analyses of Fish Prices by F. Waugh and V. Norton.

23. Some Economic Characteristics of Pond-Raised Catfish Enterprises by J. E. Greenfield

24. Elements Crucial to the Future of Alaska Commercial Fisheries by D. Nash, A. Sokoloski, and D. Cleary.

25. Effects on the Shrimp Processing Industry of Meeting the Requirements of Wholesome Fishery Products Legislation by D. Nash and M. Miller.

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29. Costs, Earnings and Borrowing Capacity for Selected U. S. Fisheries, by A. Sokoloski, E. Carlson, and B. Noetzel.

30. Fish Cycles: A harmonic analysis by F. Waugh and M. Miller.

31. Benefit-Cost Analysis as Applied to Commercial Fisheries Programs, by F. Bell.

32. Economic Study of San Pedro Wetfish Boats by W. F. Perrin and B. Noetzel.

33. A Survey of Fish Purchases by Socio-Economic Characteristics - First Quarterly Report - February, May, April, 1969 by Darrel A. Nash.

34. A Survey of Fish Purchases by Socio-Economic Characteristics, Second Quarterly Report - May June July by D. Nash.

35. A Simplified Guide to Benefit-Cost Analysis for BCF Programs by F. Bell.

36. Estimation of the Optimal Number of Vessels in a Fishery: Theoretical and Empirical Basis for Fishery Management by F. Bell.

37. Major Economic Trends in Selected U.S. Master Plan Fisheries: A Graphical Survey by Richard K. Kinoshita and Frederick W. Bell

38. Market Potential for the San Pedro Wetfish Fishery by D. Nash

The goal of the Division of Economic Research is to engage in economic studies which will provide industry and government with costs, production and earnings analyses; furnish projections and forecasts of food fish and industrial fish needs for the U. S.; develop an overall plan to develop each U. S. fishery to its maximum economic potential and serve as an advisory service in evaluating alternative programs within the Bureau of Commercial Fisheries.

In the process of working towards these goals an array of written materials has been generated representing items ranging from interim discussion papers to contract reports. These items are available to interested professionals in limited quantities of offset reproduction. These "Working Papers" are not to be construed as official BCF publications and the analytical techniques used and conclusions reached in no way represent a final policy determination endorsed by the U. S. Bureau of Commercial Fisheries.